

Watergate Reserve Actions

Priorities will be given to programs for long term benefit to the reserves. Natural assets at greatest risk will be given priority to avert irreversible deterioration. All measures cannot be implemented simultaneously as resources may not be available or it may not be appropriate.

1. WCC Bushland Support Team and Council bush regeneration contractors to improve visual appeal of the entrance to the Reserve. Investigate seating options when restoration work has been completed.

2. Monitor encroachments at The Barbette, The Rampart, Parker Street and The Outpost and refer priorities to Compliance Section.

3. Council bush regeneration contractors to continue maintenance and planting in riparian zone between Sailors Bay Creek and residential boundaries.

4. WCC Bushland Regeneration Team to remove fishbone fern and woody weeds in riparian zone and along track.

5. Council bush regeneration contractors to target woody weeds working from bad to good bush minimising disturbance to the natural conditions.

6. Bushcare groups to continue management of site in accordance with the Bushcare Action Plans.

7. Coastal foreshore of properties 2-14 Rockley Street (approx. 20 metres wide) and vegetation located on the rear of properties at 41-45 Noonbinna Crescent is zoned E2 Environmental Conservation. Objectives are to protect and manage conservation and aesthetic values of these areas.

8. Council bush regeneration contractors to remove woody, vine and herbaceous weeds. Carry out work from areas of high resilience to low resilient particularly along stormwater and sewer lines.

9. Council bush regeneration contractors to remove woody, vine and herbaceous weeds. Re-armouring of drainage line to be investigated.
10. Monitor drainage lines and flow paths to reduce erosion and weed infestations. Area at track junction (behind 18 The Barbette and 9 The Redoubt) to have primary weed maintenance carried out intermittingly.

11. Council bush regeneration contractors to remove herbaceous and vine weeds along foreshore expanding work area westerly. Palms on foreshore to be treated and removed over time.

12. Council bush regeneration contractors to remove woody, vine and herbaceous weeds between stormwater lines and along track.

13. Council bush regeneration contractors to maintain informal track. Weed plumes to be targeted along sewer line.

14. Monitor woody, vine and herbaceous weeds behind The Barbette. Council bush regeneration contractors to remove over time.

15. Informal track to continue to provide access to Sailors Bay Park.

16. Identify options to improve access and maintain existing sandstone steps.

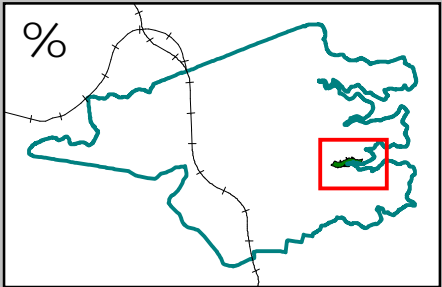
17. Large Coral Tree to be treated and dead trees adjacent to 12 Rockley Street to be pruned or removed to reduce risk to property and people.

18. Survey Reserve boundaries to define the extent of the Reserve and identify any encroachments. Permanent markers to be installed.

19. Liaison with residents adjacent to bushland to optimise management of privately owned bushland.



RESERVE ACTION PLAN
WATERGATE



Plan details

Status: Final
Prepared by: N. Yu
Drawn by: N. Prasad
Date printed: 08/08/2019
Approximate Scale: 1:2500 on A3

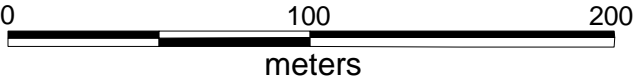
Legend

- 15

Property number
- 12

Action plan activity
- Stormwater node
- Sewer access chamber **
- Approximate fire hydrant location
- 35

5m contours
- Stormwater network - Underground *
- Stormwater network - Overground / Unknown *
- Bush track / Path
- Property boundary
- Reserve / bushland
- Council bush regeneration contractors
- Council staff regeneration site
- Bush Care
- E2 Environmental Conservation Zones adjoining the Reserve Action Plan Area



* The accuracy of this data is not guaranteed and must be verified prior to use.
** Data as at 14-07-2007. Please check with Dial Before You Dig prior to any earth works.
*** No responsibility is taken for the accuracy of this data. Please check with Energy Australia, Dial Before You Dig or any other relevant authorities prior to undertaking any work.

References

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Watergate Reserve Action Plan

Reserve Profile

Watergate Reserve is a natural bushland area located on the southern shoreline of the Castlecrag peninsula. It is part of the Griffin Estate designed by Sir Walter Burley Griffin and his wife Marion Mahony Griffin in the 1920s. The Reserve is approximately 6.5 hectares in size and incorporates Sailor's Bay Creek and the associated estuarine area of Sailors Bay and Middle Harbour. The Reserve is bounded by residential areas to the north and south, Warners Park to the west and Sailors Bay to the east. Upper Sailors Bay Creek has been piped to flow underground below Warners Park before flowing from stormwater pipes into Watergate Reserve where it re-joins the natural creek line. The sites geology is primarily Hawkesbury sandstone that forms a dramatic escarpment extending alongside Sailors Bay Creek for almost the entire length of the Reserve.

PLANT COMMUNITY: The higher northern side of Sailors Bay Creek is Coastal Sandstone Gully Forest (S_DS09) with dominant species of Sydney Peppermint (*Eucalyptus piperita*), Sydney Red Gum (*Angophora costata*) and Cheese Tree (*Glochidion ferdinandi*). Below this is Coastal Sandstone Gallery Forest (S_RF02) where dominant species include Coachwood (*Ceratopetalum apetalum*) and Sweet Pittosporum (*Pittosporum undulatum*). At the mouth of Sailors Bay Creek, where it meets Middle Harbour, there is a small Estuarine Mangrove Forest consisting of River Mangrove (*Aegiceras corniculatum*) and Beaded Samphire (*Sarcocornia quinqueflora*).

HABITAT: The steep topography of Watergate Reserve provides safe habitat for wildlife. Plant communities including open woodland, closed forest and rocky sandstone habitats and tree hollows, support a diverse range of species. Sailors Bay Creek runs the length of the reserve providing valuable riparian zones. Sailor's Bay Creek then flows into an inter-tidal zone of Middle Harbour. Here saltmarsh and mangroves provide more habitats for many species.

Statement of Significance

Watergate Reserve has bushland as defined in State Environmental Planning Policy No 19, and is protected under State and Commonwealth Legislation. All areas discussed in this Reserve Action Plan are zoned E2 Environmental Conservation in the Willoughby Local Environment Plan (WLEP) 2012.

ABORIGINAL CULTURAL SIGNIFICANCE: The Gamaraygal clan of the Guringai nation originally occupied this area. The Reserve contains significant south facing rock ledges that would have been used by indigenous people. These areas will not be promoted to the public to protect them from disturbance.

NATURAL HERITAGE SIGNIFICANCE: Watergate Reserve is located within the Sailors Bay Creek catchment. It is part of the Sailor's Bay group of reserves that form a continuous corridor along the southern foreshore of Castlecrag. Threatened species such as the Powerful Owl utilise this corridor as does the Superb Lyrebird and Swamp Wallaby that now reside in the area.

Watergate Reserve provides a fine example of Coastal Sandstone Gallery Forest. Here the walking track winds through a gully with many rocky outcrops, overhangs and escarpments with large Coachwood trees.

HISTORIC CULTURAL SIGNIFICANCE: Watergate Reserve is part of an open space network of reserves, pathways, drainage and road island reserves in Castlecrag that were designed to be unified with the natural environment by architects Walter Burley Griffin and his wife Marion Mahony Griffin in the 1920s. A key

component of the Griffin vision was the reservation of foreshore land to preserve its natural environment. Originally when the suburb of Castlecrag was designed, a road called 'The Palisade' was proposed to run from the 'The Outpost' through Watergate Reserve above the creek bed and then alongside the foreshore. Only the first 20 metres of the road was constructed. HABITAT SIGNIFICANCE: Watergate Reserve has many rocky outcrops, overhangs, and cliff faces that are suitable habitat for many species. Several significant old trees provide valuable hollows for birdlife. Eroded sandstone overhangs and fractures provide habitat for numerous reptiles and invertebrates.

The topography and dense vegetation of Watergate Reserve create a largely inaccessible area with public access limited to designated walking tracks. This has created areas of seclusion important for many native animals including Swamp Wallabies and the Superb Lyrebird.

Tall Coachwood trees in the lower riparian zone form a closed forest providing an important refuge for wildlife particularly in summer. Bird species like the Powerful Owl and migratory species like the Rose-crowned Fruit Dove and Top Knot Pidgeon have been sighted here.

Other Fauna in this area include Peron's Tree Frog, White Headed Pigeons, White-cheeked Honeyeater, Lace Monitor and the Grey-headed Flying Fox.

Reserve Impacts

Evidence of urban impacts can be seen along residential boundaries and stormwater and sewer lines. These areas have the greatest disturbance where stormwater and sewer lines have increased available nutrient assisting weed growth. Council bush regeneration contractors are focussing the majority of their work in these areas and are moving outwards from here to less weed infested areas.

Sailors Bay Creek flows east from Market Gardens Park, under Eastern Valley Way and flows into Warners Park and then into Watergate Reserve. The water quality of the creek in the Reserve is affected by land use upstream. Sediment over time has been washed downstream resulting in the creation of an inter-tidal zone containing Mangroves. Rubbish found in and along the creek bank is minimal.

The Reserve is impacted by garden escapes from adjoining residents and encroachments. These encroachments are listed in the Council Encroachment Register and priorities are referred to Council's Compliance Section.

ENCROACHMENTS: The Barbette (2 and 18), The Rampart (12, 24 and 26), Parker Street (12) and The Outpost (3).

Wildlife Habitat Issues

Foxes, off leash dogs and cats in the reserve form a significant risk to fauna. Species that breed terrestrially like the Superb Lyrebird as well as Swamp Wallabies, bandicoots, reptiles and small birds are at risk of predation.

Water pollution incidents and increased sedimentation of Sailors Bay Creek negatively impact riparian habitat and wildlife.

Property encroachment and unsupervised clearing of trees and vegetation can destroy habitat and reduce the overall habitat quality of the reserve.

Achievements

Track upgrades carried out during 2019 preventing erosion in parts of the track. Here stone steps along the track have been improved and continue to be maintained. This has also led to the protection of the creek reducing the sediment run-off. Extensive improvements to native vegetation have been achieved by Council bush regeneration contractors and volunteers. This is particularly evident below areas of The Rampart and The Barbette. A new seat on the foreshore has been established facing Sailors Bay.

Bushland Management Goals – Watergate Reserve

This bushland Reserve Action Plan has identified the following management aims from the Urban Bushland Plan of Management 2014 as priority objectives:

5.3b: To create and or maintain conditions in which creek and drainage lines are protected from increased erosion and/or sedimentation due to urban impacts.

5.4b: To maintain the integrity of bushland reserves through the reduction of encroachments and other boundary impacts.

6.2f: To preserve and increase ecological links across the LGA and regionally to assist the movement of fauna.

6.2g: Maintain natural habitat formations and supplement with manufactured structures where natural habitat has been depleted.

6.3b: To implement weed control programs which are based on regeneration and restoration principles and which increase bushland resilience to further weed infestation.

7.1g: To manage fire such that the fire regime and implementation of the burn is beneficial to flora and fauna diversity and habitat.

10.1b: To ensure that leases and licences for activities undertaken in, or adjoining, or impacting on, bushland areas are compatible with the sustainable management of bushland.

Bushland Management – General Principles for all Reserves

a. Bushland regeneration is a long term process requiring staged weed removal to ensure establishment of native plant communities. Work will proceed from good bush to degraded areas with techniques that encourage regeneration.

b. If possible, weed refuse and natural debris composted on-site.

c. If natural regeneration is deemed inadequate, supplementary plantings to mimic local plant communities and landscapes will be used with local provenance species.

d. Standing dead trees and forest litter (including logs/branches) to be kept for wildlife habitat unless deemed a risk to safety.

e. Monitor, maintain and enhance vegetation connectivity for wildlife habitat within the reserve and reserve networks.

f. *Phytophthora cinnamomi* (a root rot pathogen) is listed as a key threatening process in NSW. Bushland workers are to use hygiene protocols to minimise risk.

g. Report and record all reserve encroachments. Monitor for tree vandalism and/or removal and report to Council Compliance for appropriate action.

h. Monitor wildlife habitat and supplement where necessary.

i. Monitor feral animal activity and implement appropriate management actions where necessary.

j. Encourage the community to report wildlife sightings via the Wildlife Watch Program.

k. Bushfire management will be achieved through implementation of a strategic hazard reduction program consistent with the Bushfire Risk Management Plan.

l. Species diversity will be maintained by an ecological burn program in a mosaic pattern.

m. Monitor and protect Aboriginal cultural heritage sites. Bushland staff to notify Aboriginal Heritage Office prior to a burn to identify

sites and implement protection measures.Office prior to a burn to identify sites and implement protection measures.

n. Preserve natural features for educational purposes and continue to inform the community of bushland issues through on-site activities and signage. Maintain appropriate signage.

o. Formal tracks to be maintained and unwanted tracks to be closed to prevent damage to habitat and to impede access of feral animals, unless used for access by bushland workers.

p. Establish photo points to monitor work and review annually.

q. Protection of habitat is required for flora and fauna species found in reserves listed under State and Commonwealth legislation as threatened species.

r. The collection of rubbish from bushland is carried out by council contractors and bushland field staff as required.

Native Plant List for Watergate Reserve

| | | |
|-------------------------------------|---|--|
| CONIFERS | <i>Epacris longiflora</i> | <i>Banksia marginata</i> |
| CUPRESSACEAE | <i>Epacris pulchella</i> | <i>Banksia serrata</i> |
| <i>Callitis rhomboidea</i> | <i>Woolisia pungens</i> | <i>Grevillea linearifolia</i> |
| FERNS | EUPHORBIACEAE | <i>Hakea dactyloides</i> |
| ADIANTACEAE | <i>Breynia oblongifolia</i> | <i>Hakea gibbosa</i> |
| <i>Adiantum aethiopicum</i> | <i>Glochidion ferdinandi</i> | <i>Hakea sericea</i> |
| ASPLENIACEAE | <i>Omalanthus populifolius</i> | <i>Hakea teretifolia</i> |
| <i>Asplenium australasicum</i> | <i>Phyllanthus hirtellus</i> | <i>Lomatia silaifolia</i> |
| BLECHNACEAE | FABACEAE FABOIDEAE | <i>Persoonia levis</i> |
| <i>Doodia aspera</i> | <i>Glycine clandestina</i> | <i>Persoonia pinifolia</i> |
| CYATHEACEAE | <i>Glycine tabacina</i> | RUBIACEAE |
| <i>Cyathaea cooperi</i> | <i>Gompholobium latifolium</i> | <i>Opercularia aspera</i> |
| DENNSTAEDTIACEAE | <i>Hardenbergia violacea</i> | <i>Pomax umbellata</i> |
| <i>Pteridium esculentum</i> | <i>Indigolera australis</i> | RUTACEAE |
| DICKSONIACEAE | <i>Kennedia rubicunda</i> | <i>Crowea saligna</i> |
| <i>Calochlaena dubia</i> | <i>Platylobium formosum</i> | <i>Phebalium dentatum</i> |
| GLEICHENIACEAE | <i>Pultenaea daphnoides</i> | <i>Zieria smithii</i> |
| <i>Gleichenia dicarpa</i> | <i>Pultenaea elliptica</i> | SANTALACEAE |
| LINDSAEACEAE | FABACEAE-MIMOSOIDEAE | <i>Exocarpus cupressiformis</i> |
| <i>Lindsaea linearis</i> | <i>Acacia ulicifolia</i> | SAPINDACEAE |
| SCHIZACEAEAE | <i>Acacia decurrens</i> | <i>Dodonaea triquetra</i> |
| <i>Cheilanthes austrotenuifolia</i> | <i>Acacia floribunda</i> | SCROPHULARIACEAE |
| SINOPTERIDACEAE | <i>Acacia linifolia</i> | <i>Veronica plebeia</i> |
| <i>Pellaea falcata</i> | <i>Acacia longifolia</i> var. <i>longifolia</i> | STERCULIACEAE |
| <i>Pellaea paradoxa</i> | <i>Acacia suaveolens</i> | <i>Lasiopetalum ferrugineum</i> |
| THELYPTERIDACEAE | <i>Acacia terminalis</i> | VERBENACEAE |
| <i>Christella dentata</i> | HALORAGACEAE | <i>Clerodendrum tomentosum</i> |
| DICOTS | <i>Gonocarpus teucrioides</i> | VITACEAE |
| ACANTHACEAE | <i>Haloragis heterophylla</i> | <i>Cissus antarctica</i> |
| <i>Pseuderanthemum variable</i> | LAMIACEAE | <i>Cissus hypoglauca</i> |
| APIACEAE | <i>Plectranthus parvifolius</i> | MONOCOTS |
| <i>Centella asiatica</i> | LOBELIACEAE | COMMELINACEAE |
| <i>Hydrocotyle peduncularis</i> | <i>Lobelia gracilis</i> | <i>Commelina cyanea</i> |
| <i>Platysace linearifolia</i> | <i>Pratia purpurascens</i> | CYPERACEAE |
| <i>Xanthosia pilosa</i> | MENISPERMACEAE | <i>Caustis flexuosa</i> |
| ARALIACEAE | <i>Stephania japonica</i> | <i>Gahnia erythrocarpa</i> |
| <i>Polyscias sambucifolia</i> | MORACEAE | <i>Lepidosperma laterale</i> |
| ASCLEPIADACEAE | <i>Ficus rubiginosa</i> | <i>Lepidosperma longitudinale</i> |
| <i>Marsdenia suaveolens</i> | MYRSINACEAE | <i>Schoenus melanostachys</i> |
| <i>Tylophora barbata</i> | <i>Rapanea variabilis</i> | LILIACEAE |
| ASTERACEAE | MYRTACEAE | <i>Dianella caerulea</i> var <i>caerulea</i> |
| <i>Cassinia aculeata</i> | <i>Acmena smithii</i> | LOMANDRACEAE |
| BAUERACEAE | <i>Angophora costata</i> | <i>Lomandra longifolia</i> |
| <i>Bauera rubioides</i> | <i>Eucalyptus gummifera</i> | <i>Lomandra multiflora</i> |
| BIGNONIACEAE | <i>Eucalyptus haemastoma</i> | <i>Lomandra obliqua</i> |
| <i>Pandorea pandorana</i> | <i>Eucalyptus maculata</i> | <i>Lomandra fluviatilis</i> 3RC |
| CAMPANULACEAE | <i>Eucalyptus pilularis</i> | ORCHIDACEAE |
| <i>Wahlenbergia stricta</i> | <i>Eucalyptus piperita</i> | <i>Cryptostylis erecta</i> |
| CASSYTHACEAE | <i>Eucalyptus punctata</i> | PHILESIACEAE |
| <i>Cassytha paniculata</i> | <i>Kunzea ambigua</i> | <i>Eustrephus latifolius</i> |
| CASUARINACEAE | <i>Leptospermum laevigatum</i> | <i>Geitonoplesium cymosum</i> |
| <i>Allocasuarina littoralis</i> | <i>Leptospermum squarrosum</i> | POACEAE |
| <i>Casuarina glauca</i> | <i>Leptospermum trinervium</i> | <i>Cymbopogon refractus</i> |
| CHENOPODIACEAE | <i>Melaleuca quinqueruvia</i> | <i>Dichelachne crinita</i> |
| <i>Sarcocornia quinqueflora</i> | <i>Melaleuca styphelioides</i> | <i>Digitaria parvifolia</i> |
| CONVOLVULACEAE | OLEACEAE | <i>Echinopogon caespitosus</i> |
| <i>Dichondra repens</i> | <i>Notelaea longifolia</i> | <i>Eragrostis brownii</i> |
| CUNONIACEAE | PITTOSPORACEAE | <i>Imperata cylindrica</i> |
| <i>Callicoma serratifolia</i> | <i>Billardiera scandens</i> | <i>Microlaena stipoides</i> |
| <i>Ceratopetalum apetalum</i> | <i>Pittosporum revolutum</i> | <i>Opismenus imbecillis</i> |
| <i>Ceratopetalum gummiferum</i> | <i>Pittosporum undulatum</i> | <i>Themeda australis</i> |
| DILLENIACEAE | PRIMULACEAE | SMILACACEAE |
| <i>Hibbertia scandens</i> | <i>Aegiceras corniculatum</i> | <i>Smilax glycyphylla</i> |
| ELAEOCARPACEAE | PROTEACEAE | XANTHORRHOACEAE |
| <i>Elaeocarpus reticulatus</i> | <i>Banksia ericifolia</i> | <i>Xanthorrhoea arborea</i> |
| EPACRIDACEAE | <i>Banksia integrifolia</i> | <i>Xanthorrhoea media</i> ssp. <i>media</i> |